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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,785	04/15/2004	Abraham Robert De Kraker	TH1890 02 (US)	6658
23632	7590	08/18/2005	EXAMINER	
SHELL OIL COMPANY P O BOX 2463 HOUSTON, TX 772522463			ZUCKER, PAUL A	
			ART UNIT	PAPER NUMBER

1621

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/824,785

Applicant(s)

DE KRAKER ET AL.

Examiner

Paul A. Zucker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-21, 24 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 5, 22, 23 and 25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/17/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 recites the limitation "the centrifugation" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.
2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 recites the limitation "stripping" in lines 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 3, 6-21 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharrah (US 2,779,784 01-1957).

Instantly claimed is a process for the production of low base number calcium sulfonates comprising:

- a. preparing a sulfonic acid-oil solution by adding about 1 to about 20 volumes of a miscible solvent to a sulfonic acid-oil feedstock and optionally removing dissolved or entrained SO_2 or SO_3 if present;
- b. mixing the sulfonic acid-oil solution with about 1 to about 5 moles of water per mol of sulfonic acid and about 1 to about 10 moles of calcium hydroxide per mole of sulfonic acid to provide a reaction mixture;
- c. heating the reaction mixture to a temperature in the range of about 40 °C to about 200 °C;
- d. separating excess calcium hydroxide from the heated-reaction mixture to produce a reaction product comprising solvent, oil, and calcium sulfonate;
- e. removing the solvent from the reaction product to produce an intermediate product comprising oil and calcium sulfonate;

- f. optionally concentrating the intermediate product by removing at least a portion of the oil to produce a concentrated product; and
- g. recovering the intermediate product and/or concentrated product, wherein the product is essentially chloride free calcium sulfonate in oil.

Sharrah teaches (Column 4, lines 26-41) a process for the production of low base number calcium sulfonates in which sulfonic acid is mixed with oil and hexane. Calcium hydroxide in water and isopropanol is then added. Sharrah teaches (Column 3, lines 17-23) water in a 0.5 to 10 molar ratio with calcium hydroxide. Solvents were removed by distillation to produce an intermediate product and water was returned to the reaction mixture. The reaction mixture was then heated to 120°C for two hours. Hexane was then added to the reaction mixture and the solution filtered through clay (presumably) to remove solids and hexane removed at 170 °C. Sharrah teaches (Column 5, lines 16-16) the equivalence of centrifugation and filtration for the removal of solids.

The use of heptane is obvious over Sharrah's use of hexane in view of Sharrah's generic teaching (Column 3, lines 39-41) of aliphatic hydrocarbons of less than ten carbon atoms. Sharrah is silent with regard to the viscosity of the final oil-sulfonate mixture, The Examiner presumes, based upon the similarity of the process of Sharrah and that instantly claimed, that the product has a similar viscosity to that instantly claimed.

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The differences between the process taught by Sharrah and that instantly claimed are that:

- a. reaction times of up to 30 minutes are claimed while Sharrah teaches two hour reaction times;
- b. a continuous process is instantly claimed while a batch process is taught by Sharrah.

A continuous process is, however, in the absence of unexpected results, an obvious modification of a batch process in order to produce a cost-effective industrial process. One of ordinary skill in the art routinely makes this type of modification with success. There would therefore have been a reasonable expectation for success. With regard to reaction times, these too are routinely determined by one of ordinary skill in the art in the optimization of processes and, cannot, in the absence of unexpected results, confer patentability on an otherwise old process.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

4. Claims 2, 4 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharrah (US 2,779,784 01-1957). as applied to claims 1, 3, 6-21 and 26-30 above, and further in view of Richardson (US 3,260,670 07-1966).

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Instantly claimed is a process for the production of low base number calcium sulfonates comprising:

- a. preparing a sulfonic acid-oil solution by adding about 1 to about 20 volumes of a miscible solvent to a sulfonic acid-oil feedstock and optionally removing dissolved or entrained SO_2 or SO_3 if present;
- b. mixing the sulfonic acid-oil solution with about 1 to about 5 moles of water per mol of sulfonic acid and about 1 to about 10 moles of calcium hydroxide per mole of sulfonic acid to provide a reaction mixture;
- c. heating the reaction mixture to a temperature in the range of about 40 °C to about 200 °C;
- d. separating excess calcium hydroxide from the heated-reaction mixture to produce a reaction product comprising solvent, oil, and calcium sulfonate;
- e. removing the solvent from the reaction product to produce an intermediate product comprising oil and calcium sulfonate;
- f. optionally concentrating the intermediate product by removing at least a portion of the oil to produce a concentrated product; and
- g. recovering the intermediate product and/or concentrated product, wherein the product is essentially chloride free calcium sulfonate in oil.

Further claimed is a step of stripping dissolved SO₂ or SO₃ with nitrogen.

The difference between the process of Sharrah and that instantly claimed is the Sharrah does not contemplate the removal of SO₂ or SO₃ from the sulfonate with nitrogen stripping.

Richardson, however, teaches (Column 4, line 63- column 5, line 12) a process for the production of alkaline metal sulfonates in which he employs stripping with inert gas to remove dissolved SO₂ or SO₃. Richardson specifically teaches (Column 3, lines 26-31) the use of nitrogen gas to remove dissolved SO₂ or SO₃ and insure complete neutralization of sulfuric acid.

Thus one of ordinary skill in the art would have used stripping with nitrogen in the process of Sharrah to insure complete neutralization of sulfuric acid.

Because of the similar goals and methods of the processes of Sharrah and Richardson there would have been a reasonable expectation for success.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van*

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Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 21-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1,4-10 and 13 of copending Application No. 10/417, 778. Although the conflicting claims are not identical, they are not patentably distinct from each other because the processes encompassed by claim 21 of the instant application include the removal of the oil diluent to produce the calcium sulfonate product free of oil and solvent and is thus anticipated by it.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Objections

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6. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

7. Claims 5, 22, 23 and 25 are drawn to allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art, Sharrah (US 2,779,784 01-1957) and Richardson (US 3,260,670 07-1966), neither disclose nor fairly suggest either removal of oil from the final product or centrifugation of the sulfonate prior to stripping with nitrogen for removal of SO₂ or SO₃ from the sulfonate.

Conclusion

8. Claims 1-30 are pending. Claims 1-4, and 6-30 are rejected. Claim 5 is objected to.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646.

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The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



PAULA A. ZUCKER, PH.D.
PRIMARY EXAMINER